Big Data @ EUMETSAT

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Head of Strategy, Communication
and International Relations

EUMETSAT – an intergovernmental organization with 30 Member States

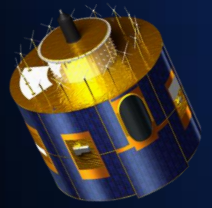
AUSTRIA
BELGIUM
BULGARIA
CROATIA
CZECH REPUBLIC
DENMARK
ESTONIA
FINLAND
FRANCE
GERMANY
GREECE
HUNGARY
ICELAND
IRELAND
ITALY
LATVIA
LITHUANIA
LUXEMBOURG
THE NETHERLANDS
NORWAY
POLAND
PORTUGAL
ROMANIA
SLOVAK REPUBLIC
SLOVENIA
SPAIN
SWEDEN
SWITZERLAND
TURKEY
UNITED KINGDOM

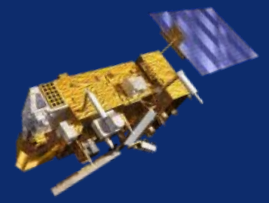
What do we do ?

EUMETSAT delivers operational (satellite) Weather and Climate Data Services to our user organisations : National Meteorological Services and Forecasting Centres

Where are we in the value chain ?

WE ARE HERE !





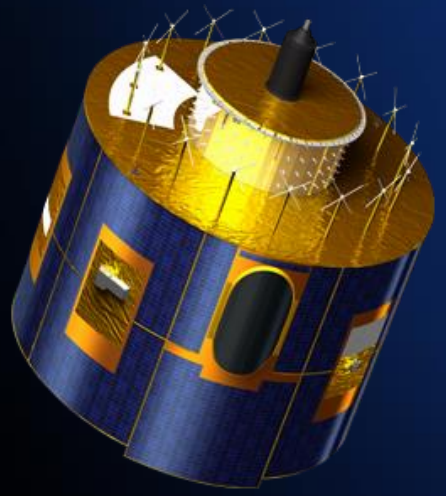
OBSERVATIONS

MODELLING

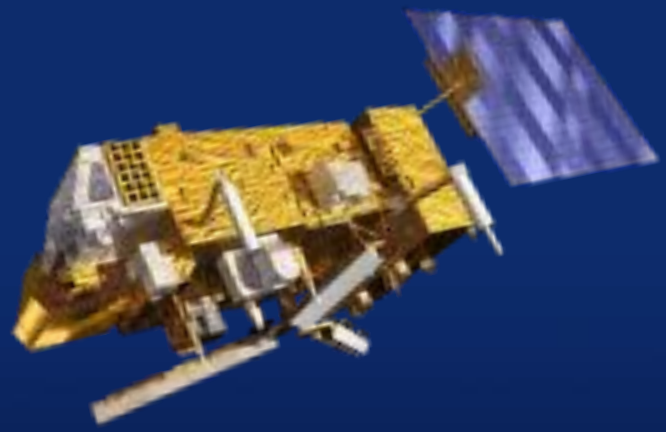
FORECASTS

DECISION MAKING

The need for two types of meteorological satellites



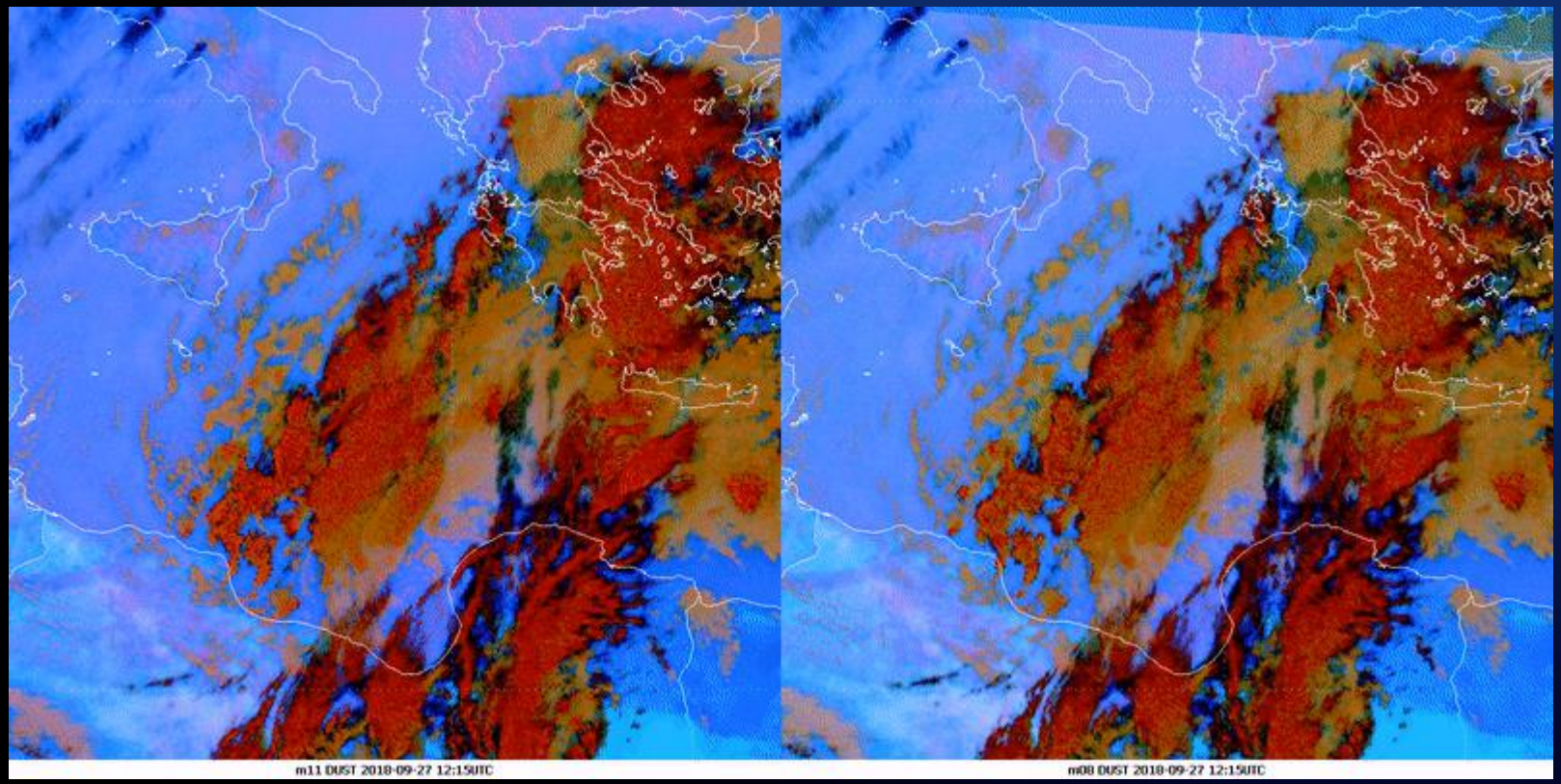
Geostationary orbit
Vital for forecasts up to a few hours



Polar orbit
Critical for forecasts up to 10 days

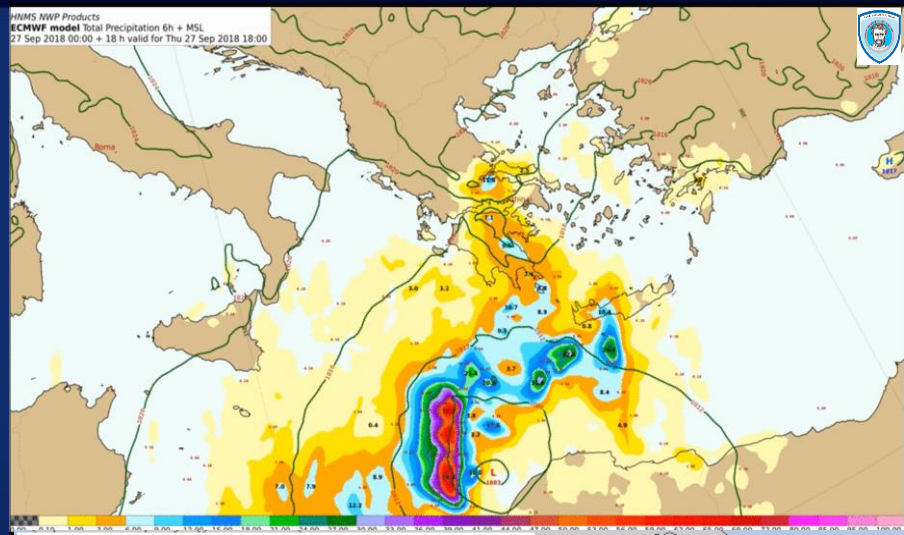
Meteosat monitors Rapid Convection Systems

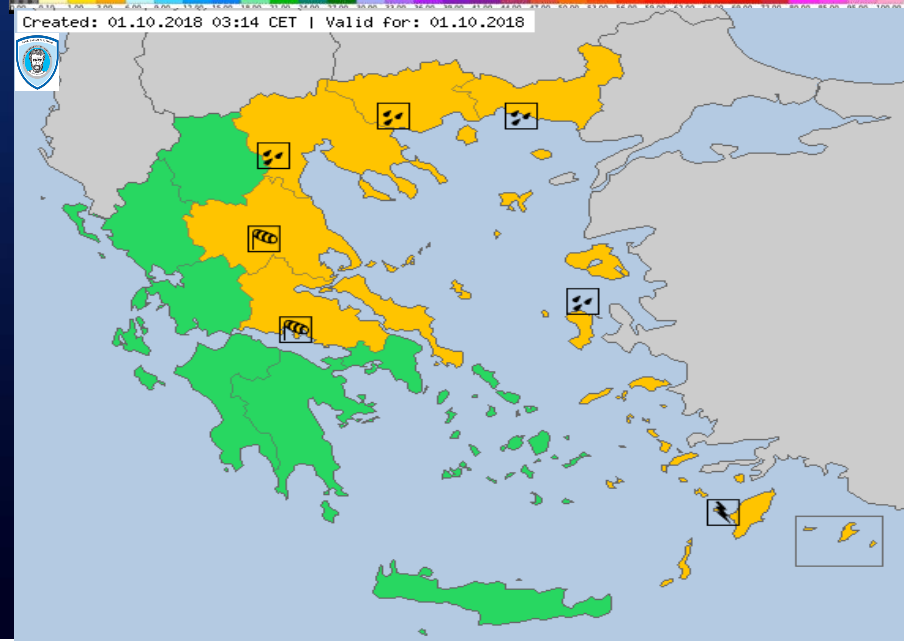
Medicane Zorba: 28-30 September 2018



Observations : Meteosat -11 (0°) and Meteosat -8 (41.5°E)

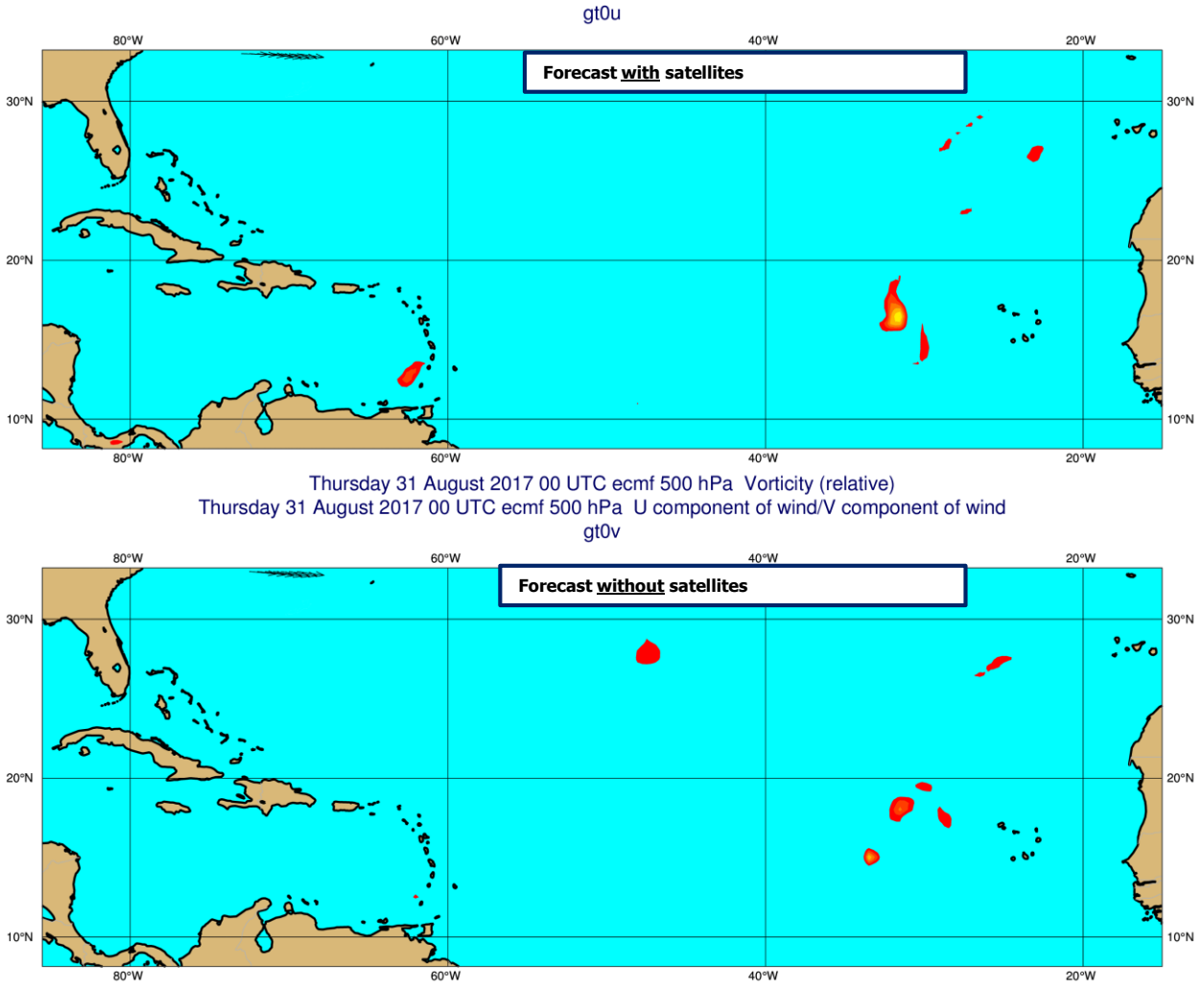
Forecast

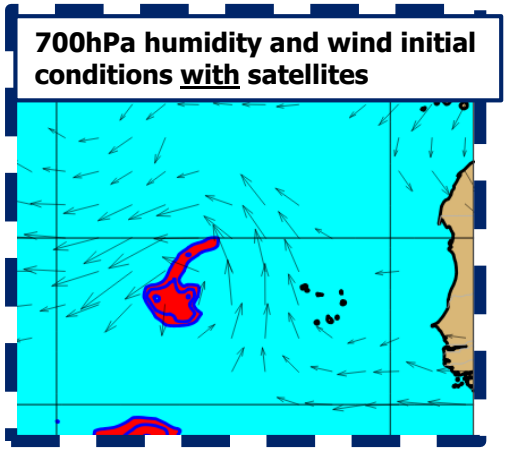




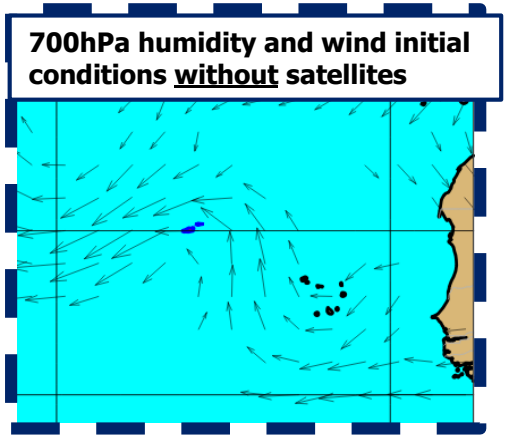
Warning

Metop contributes to forecast Hurricanes : IRMA





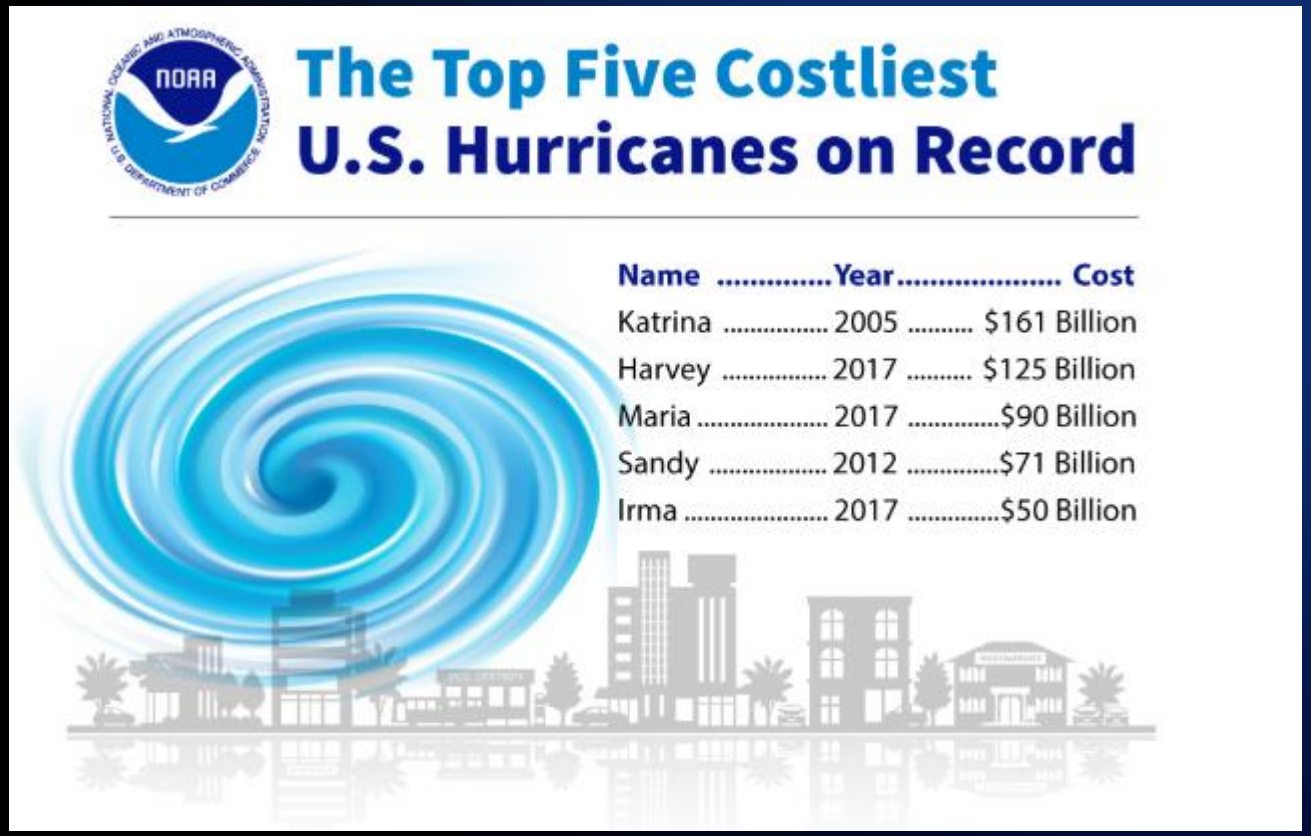
Red shading humidity > 95%

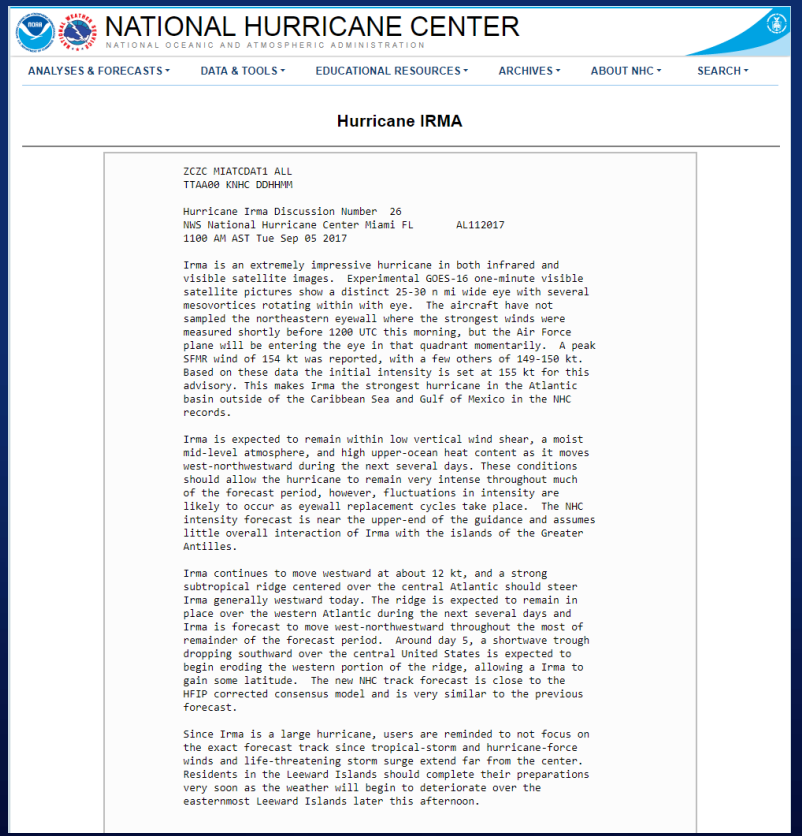


Source: ECMWF

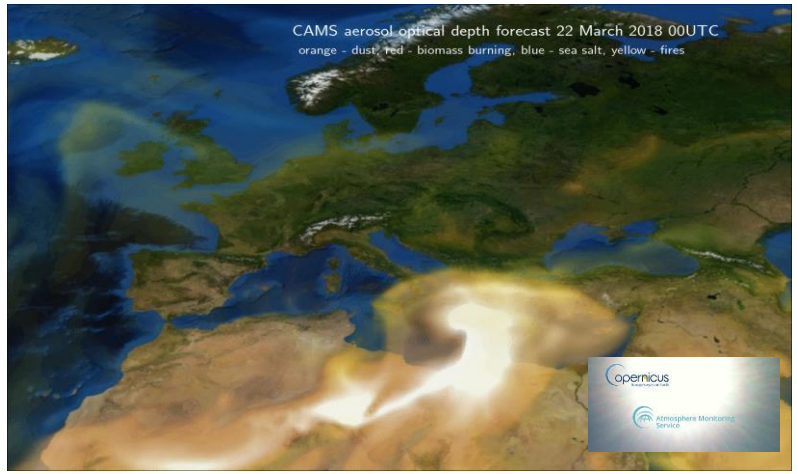
30 August – 12 September 2017

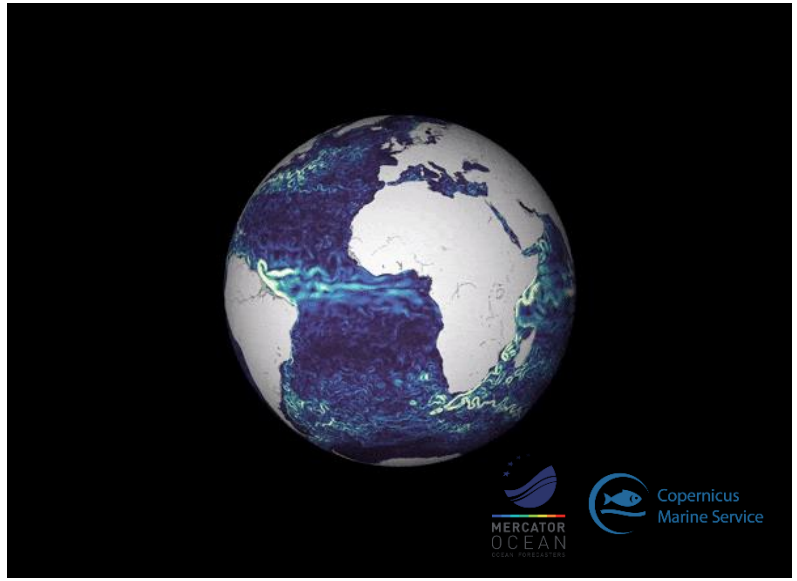
Prevention for Irma



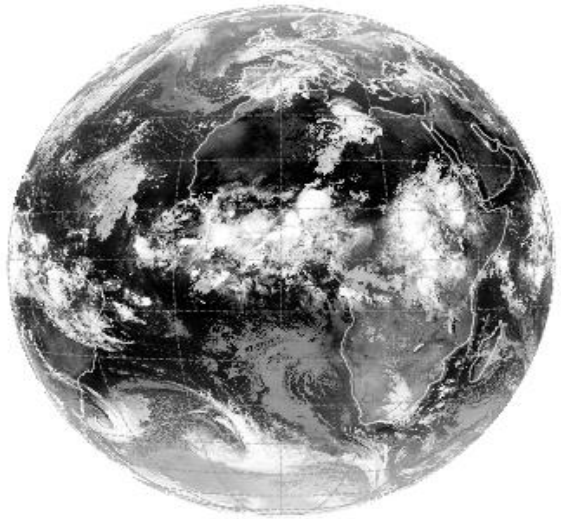


From weather to environmental forecasting : COPERNICUS

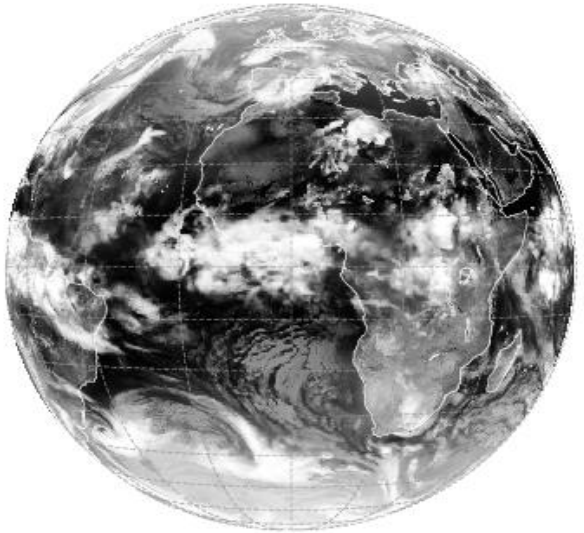




Meteosat 9 IR10.8 20080525 0 UTC



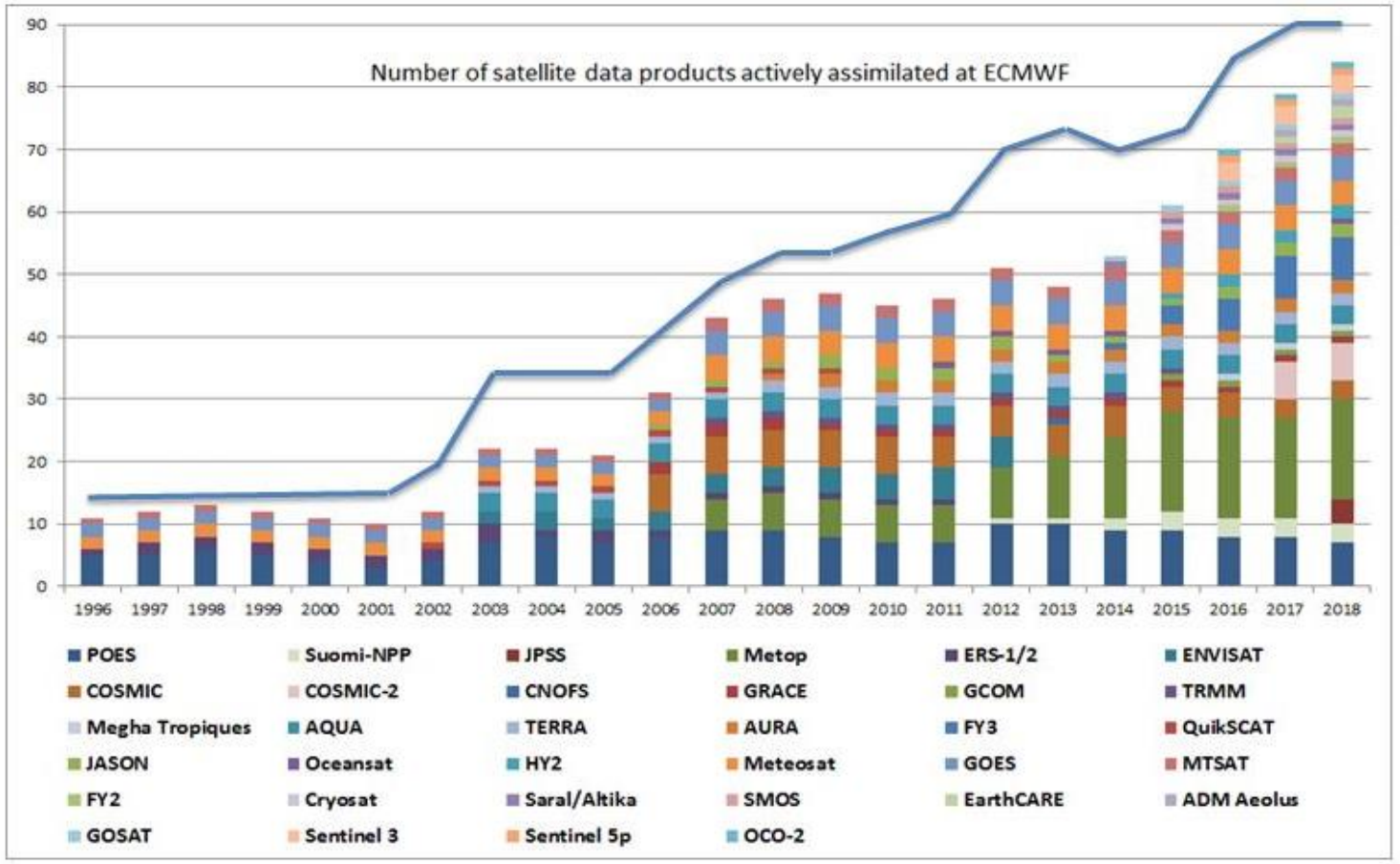
ECMWF Fc 20080525 00 UTC+0h:



opernicus
Europe's eyes on Earth

EUMETSAT

Explosion of use of Satellite Data in NWP



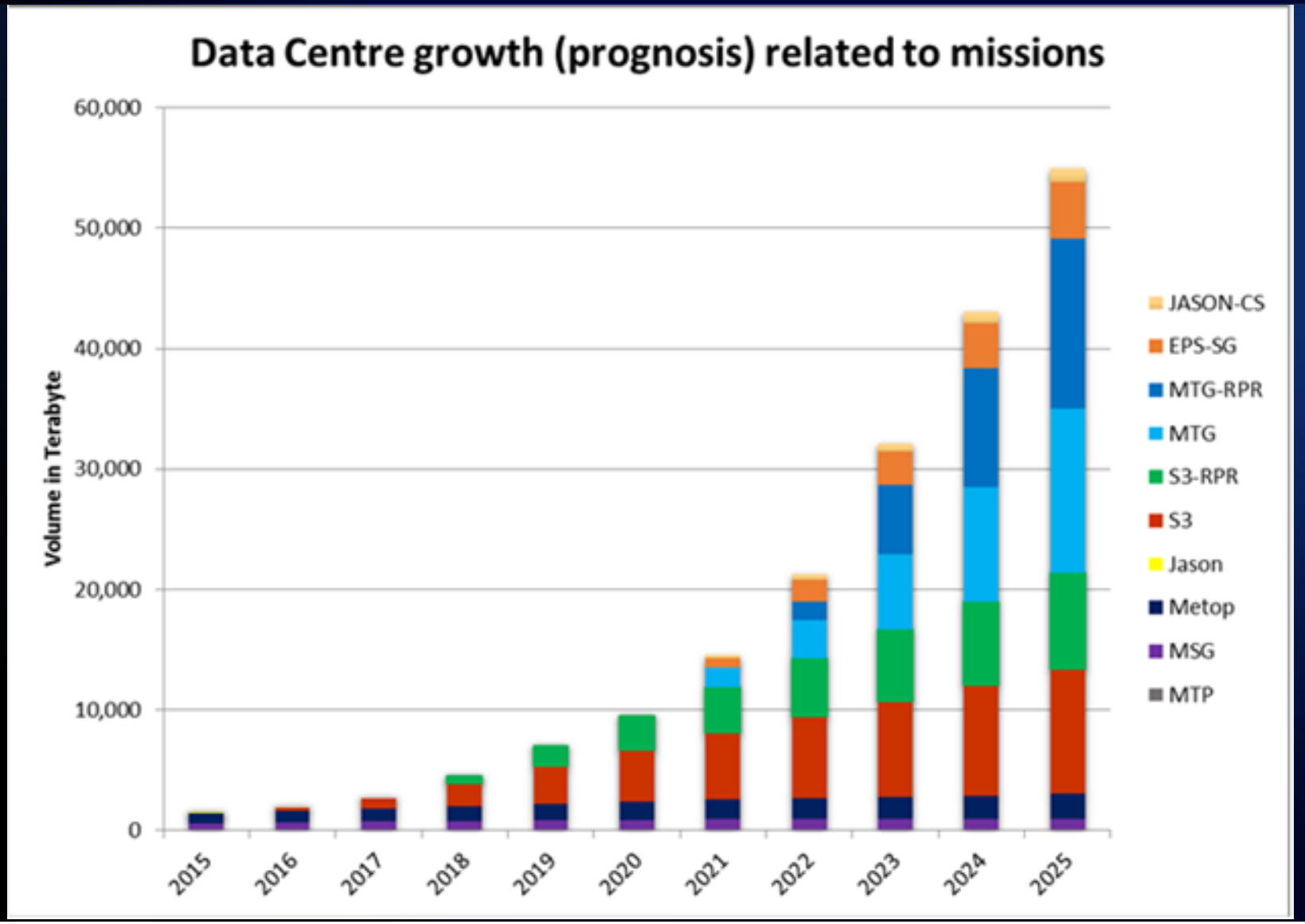
EPS-SG
MTG
FY4

2019-2025

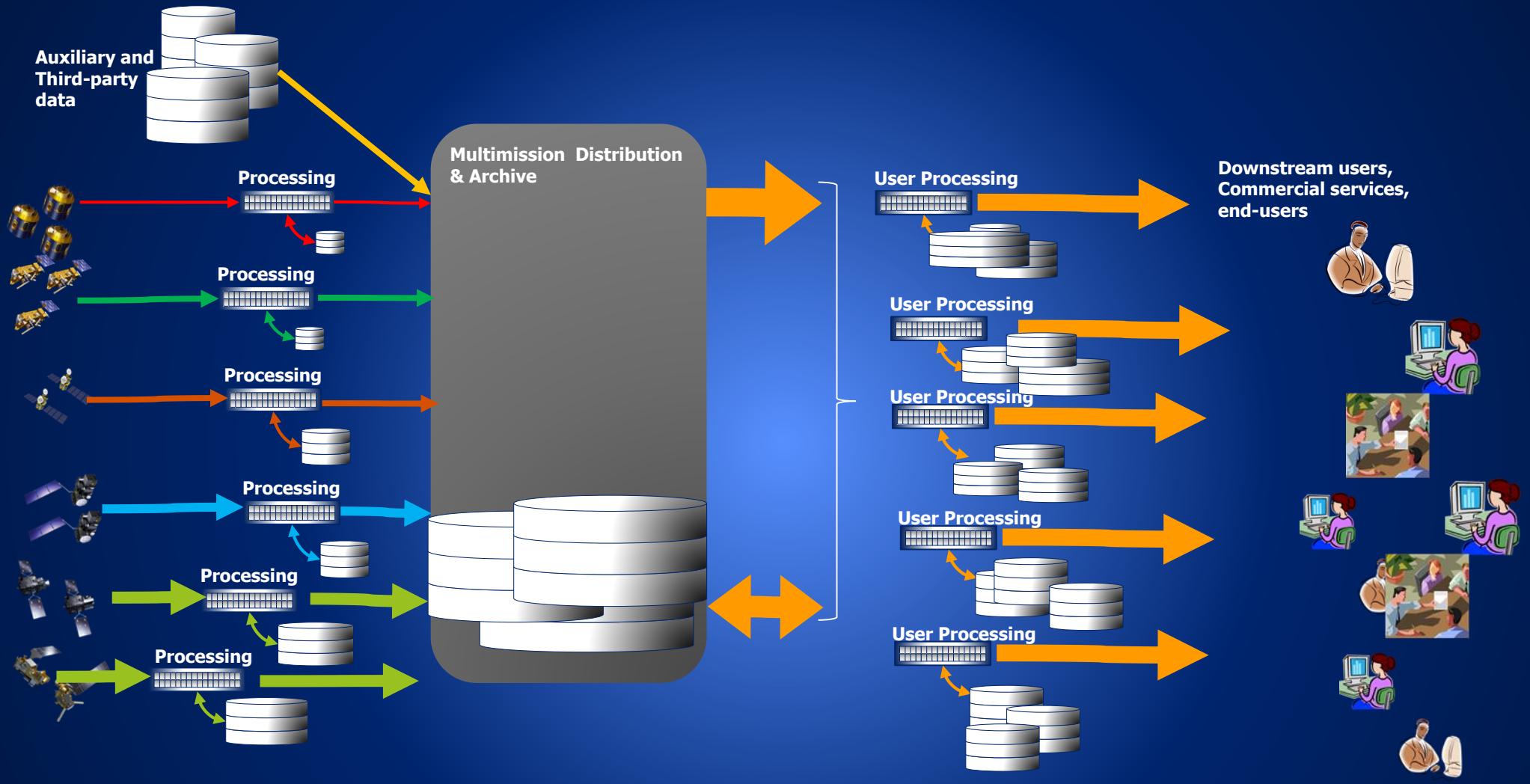
Number of satellite products operationally monitored

ECMWF EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS

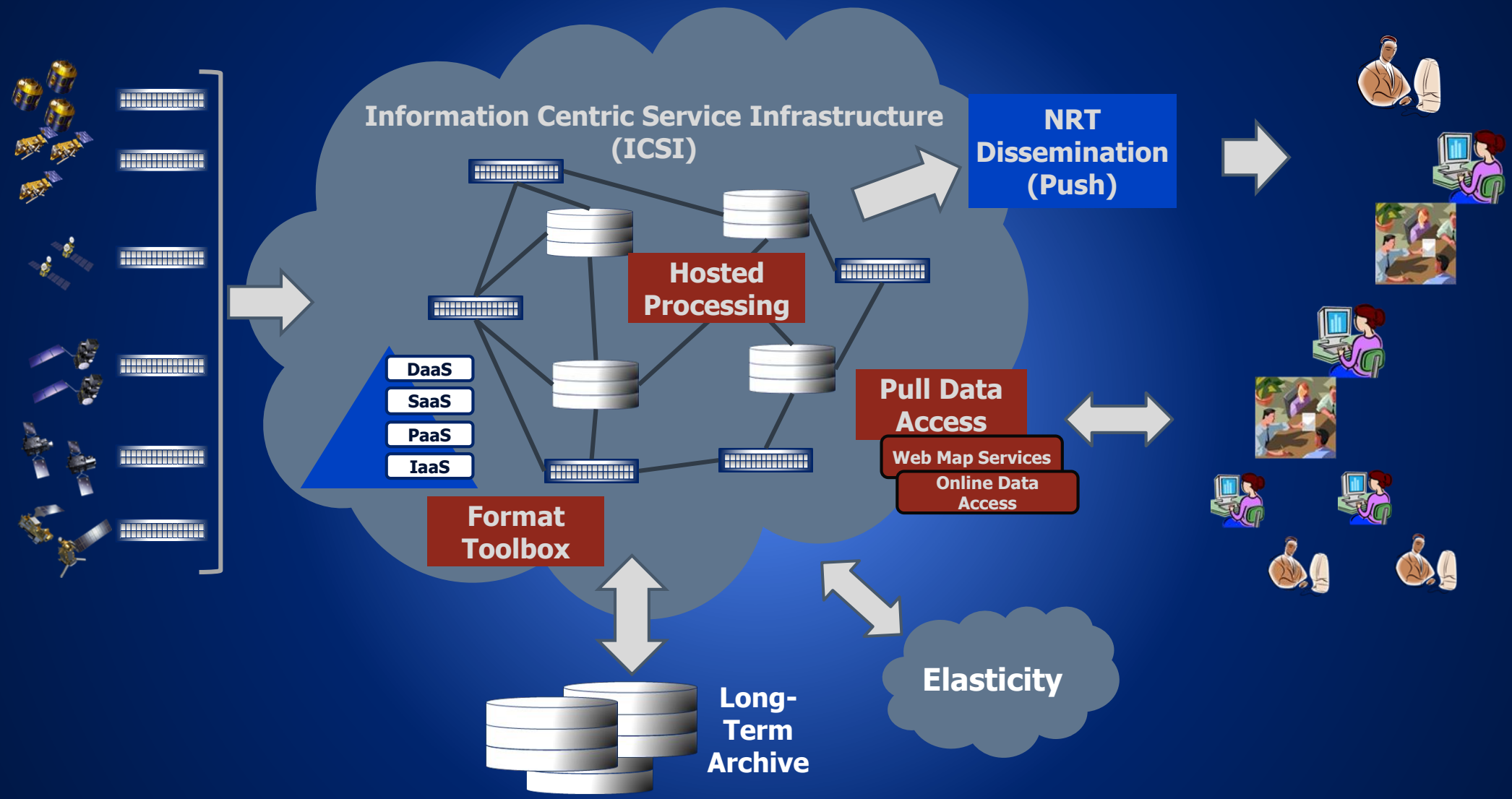
Planned growth of EUMETSAT Data Centre



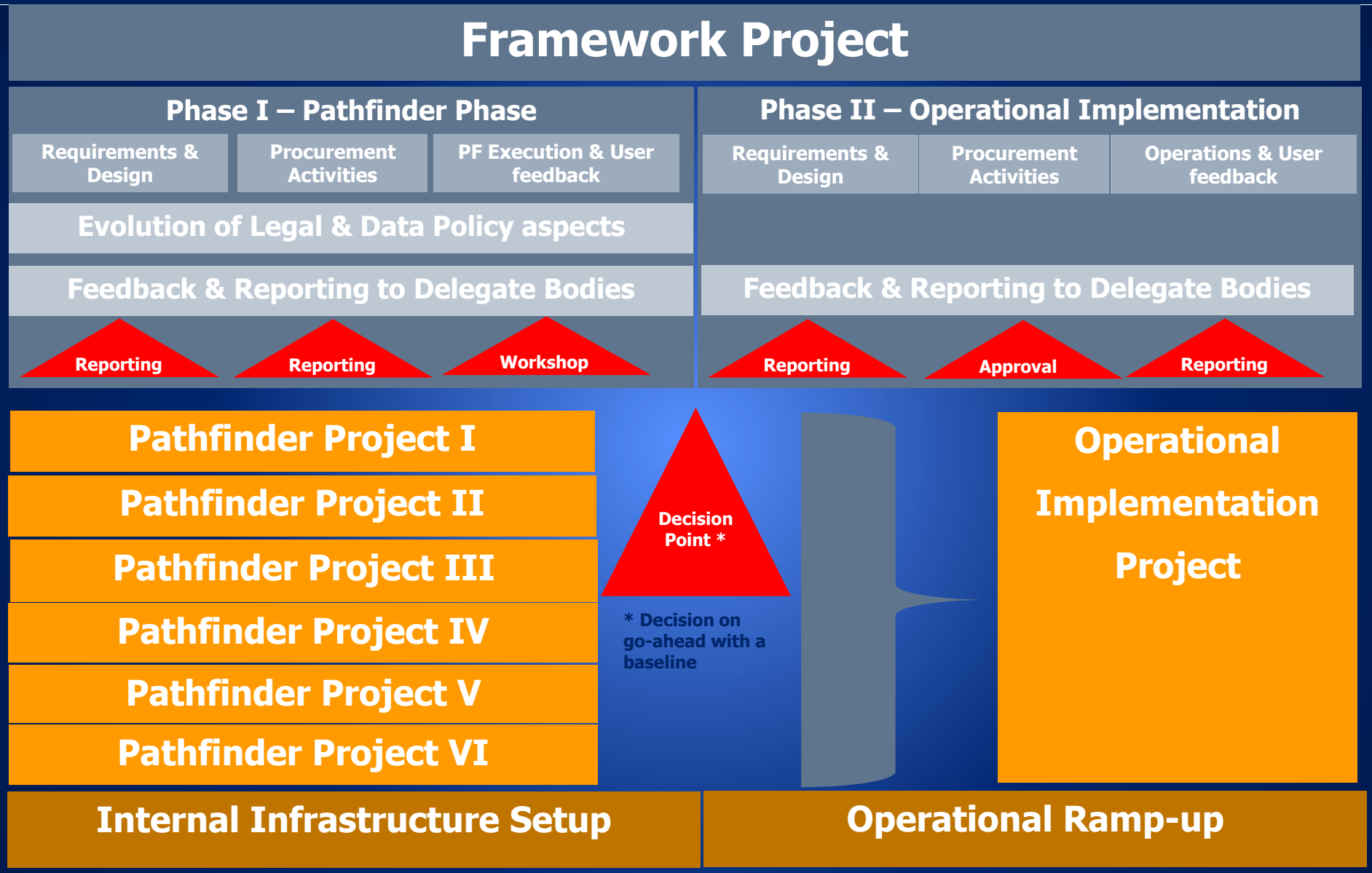
Starting Point: Current paradigm



The Initial Concept tested through Pathfinders …



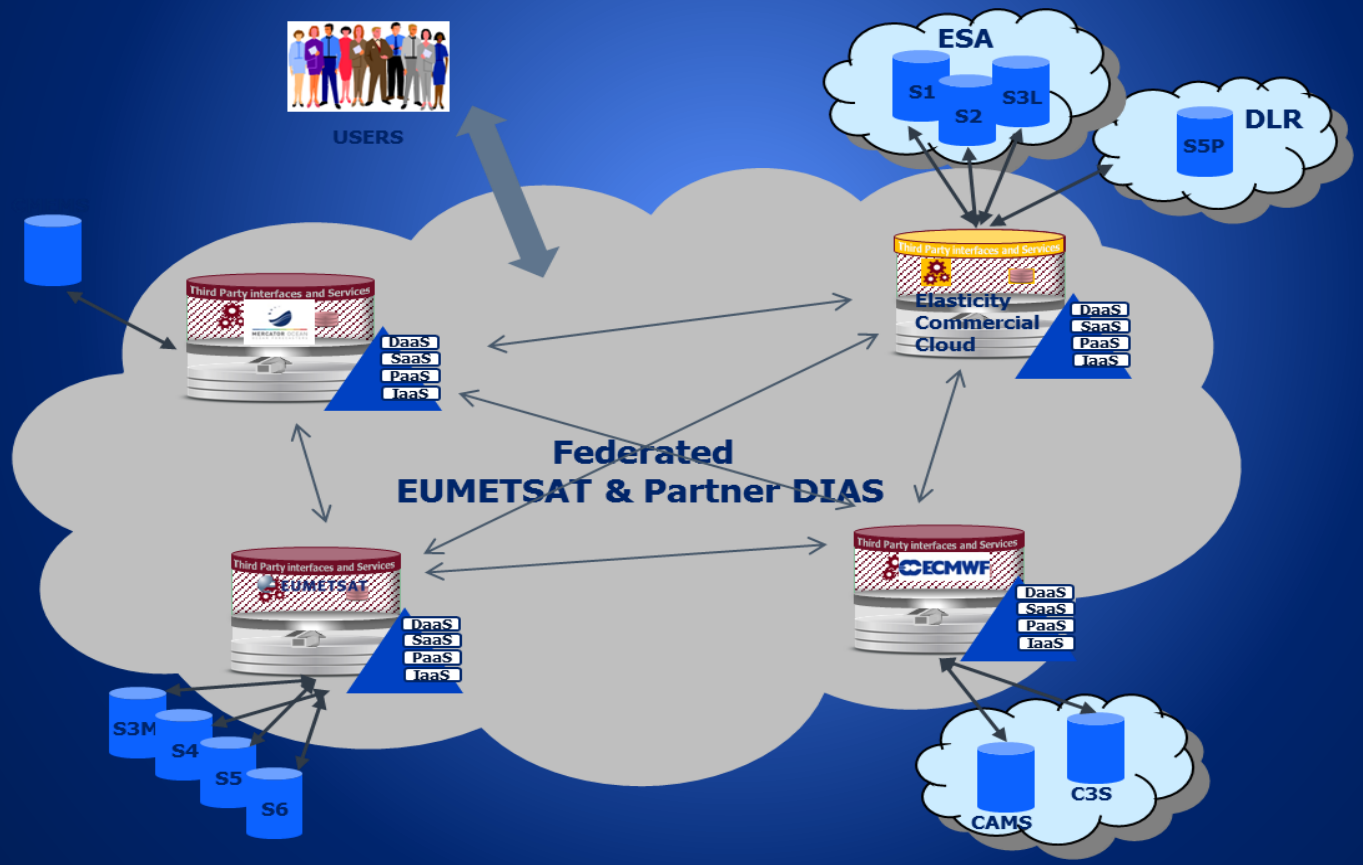
End to end logic of EUMETSAT Pathfinders



Copernicus DIAS – The idea

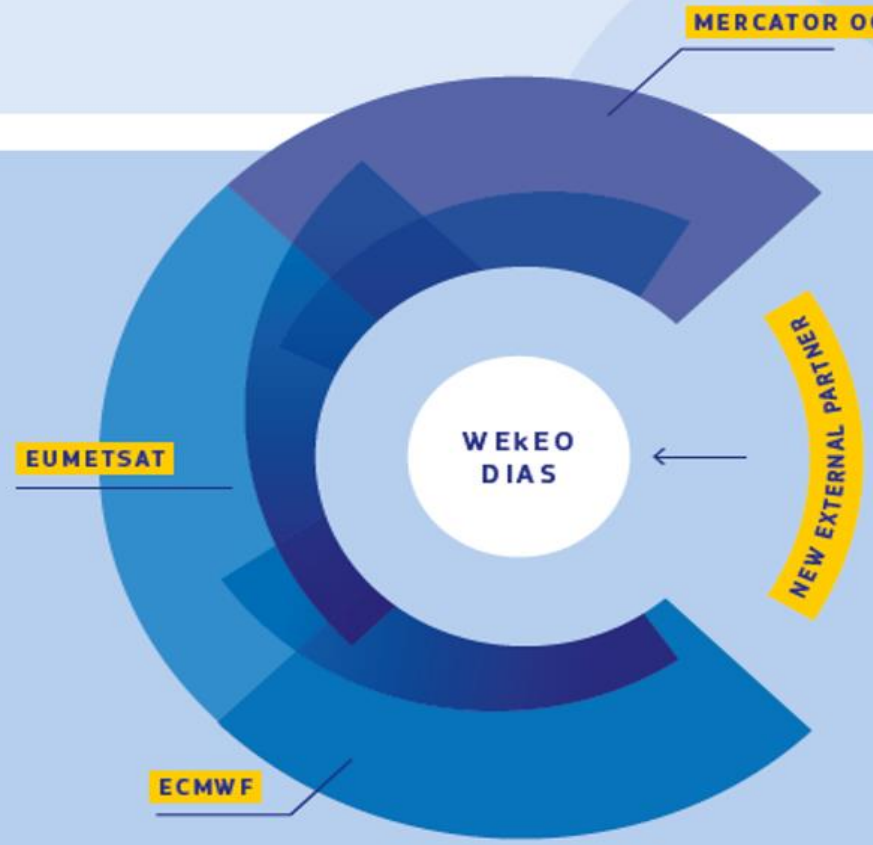
- Providing Sentinel Satellite Data + Model Data + Copernicus Services Data → strongly increased Value, Interest for uptake.

- Using cloud federation capability developed during pathfinders → EUMETSAT with Partners ECMWF and Mercator-Ocean proposed a federated DIAS



WEkEO : A Copernicus DIAS

A DISTRIBUTED INFRASTRUCTURE



The Most up-to-date Copernicus Data & An Expanding Data Offer in the future.

➔ **WEkEO's distributed infrastructure relies on the Copernicus organisation** already in place in the 3 centers : infrastructure and data from the 3 centers are not duplicated but rather linked together, reducing costs for the European tax payer and avoiding the need for new energy-consuming infrastructure.

➔ This approach gives users direct access to work with the **most up-to-date Copernicus data** instead of having to rely on copied, archive datasets.

➔ Finally, this federative approach can be extended to other selected external partners, so the system has the **potential to continually grow and expand in the future.**

VERSION 1.0 – 2018/6/8

2

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Conclusions

- Major Evolution towards digitalization → Positive lessons learned with „Orientation“ & „Pathfinders“. This is important to continue to guarantee an operational service. Important: involve all sectors (Admin, Operations, Technical, etc..)

- In the past, commercial exploitation was downstream, along the data path → Redefined limits of the „public Sector“: publicly-funded services & commercial exploitation coexist on same platform. DIAS is a good example in our specific case.

- Single Cloud solution not necessarily sufficient:

  → Data/Information Sources/Knowledge are distributed, and will remain so;
  → Commercial cloud solutions remain expensive + risk of lock-in
  → Mix of private + public cloud (elasticity)

- Federative approach, respecting the identity of contributors, fits well to our needs → will be further developed and offered to our Member States